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Control of Cannibalism in Chickens

By
J. S. Carver

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[1] In cooperation with the State Committee on the Relation of Electricity to Agriculture.
[2] In cooperation with the United States Department of Agriculture.
[3] On leave.

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By J. S. Carver

INTRODUCTION

Cannibalism in chickens is a vicious habit of picking toes, combs, vents, feathers, and other parts of the body where blood shows. This habit is quickly acquired by chicks or hens and usually starts with chicks between the ages of three and six weeks, especially when they are brooded in close confinement in the brooder house or battery brooder. Cannibalism starting in the young chicks is never lost and may crop up at any time during their life.

This habit of cannibalism in chickens has been increasing rapidly to a point where it is recognized as one of the most serious problems in brooding chicks. Many large poultry farms in the last few years have reported mortality of over 6 to 10 per cent from cannibalism. Not only has the mortality been high in many cases but a large amount of injury has been caused by the pullets picking the new succulent tail feathers as they develop.

EXPERIMENTAL WORK ON CANNIBALISM CONTROL

As reported by Carver[1] cannibalism has been prevented and controlled at the Washington Agricultural Experiment Station for the last four years by the use of the natural colored ruby lights in battery brooders and fattening batteries.

During the winter of 1929 in the experiments conducted in the nutritional laboratory at this Station considerable difficulties were encountered by the development of cannibalistic habits among the White Leghorn chicks closely confined in batteries. The trouble appeared when the chicks reached four or six weeks of age and were developing new feathers at a rapid rate. Close confinement and the presence of blood-filled shafts of new feathers in a well-lighted battery room apparently were major contributing causes of these outbreaks. The cannibalism was so severe that many of the chicks were killed before any method of prevention could be devised.

In attempting to control these outbreaks, various shades of colored light bulbs were tried in order to observe the effect of light on this habit. The lights were arranged overhead so that they would light only

[1]Carver, J. S., "The Control of Cannibalism in Battery Brooders and Fattening Batteries"., Poultry Science, 10:275-7, 1931.

the feeding troughs and a minimum amount of the battery compartments. The battery compartments were of the common open front type. The batteries were located in a heated room ventilated with electric fans and an air-mixing device to equalize temperature in all parts of the room. Each colored light was given two days' trial, and all colors with the exception of the natural colored ruby bulb were found ineffective in the prevention of cannibalism.

The natural ruby Mazda 60-watt light prevented cannibalism in chicks that had not acquired the habit and immediately arrested cannibalism in batteries where it was in progress. At this station, since this discovery, numerous lots of chickens have been raised in confinement in batteries to the age of eight weeks and also several lots to maturity without encountering cannibalism in any case where the natural ruby light was used.

Table 1. Tests of Electric, Colored, Mazda Bulbs for Prevention of Cannibalism and Feather Picking in Battery Brooders

Kind of lamp bulb	Bulb	Color	Watts	Cannibalism	Feather picking
Daylight inside frosted Mazda	A-21 Daylight	Blue Glass	60	Yes	Yes
Standard line Mazda inside frosted	A-21	White	60	Yes	Yes
Inside colored and tinted	A-19	Red	25	Yes	Yes
Inside colored and tinted	A-19	Blue	25	Yes	Yes
Inside colored and tinted	A-19	Green	25	Yes	Yes
Inside colored and tinted	A-19	Yellow amber	25	Yes	Yes
Inside colored and tinted	A-19	Orange	25	Yes	Yes
Natural colored ruby	A-21	Ruby	60 to 100	No	No

The natural ruby colored lamp makes it impossible to see red ink ruling on a piece of white paper. It is equally impossible for the chicks to distinguish blood on the shaft at the base of the new rapid growing feathers. This explains the success of this type of lamp in controlling cannibalistic outbreaks in battery brooders, fattening stations, and brooder houses.

The specifications of this bulb are: 60-watt natural colored ruby Mazda A-21 bulb, glass not inside frosted. This bulb can also be obtained in the 100-watt size. The lamp must not be burned in enclosing globe.

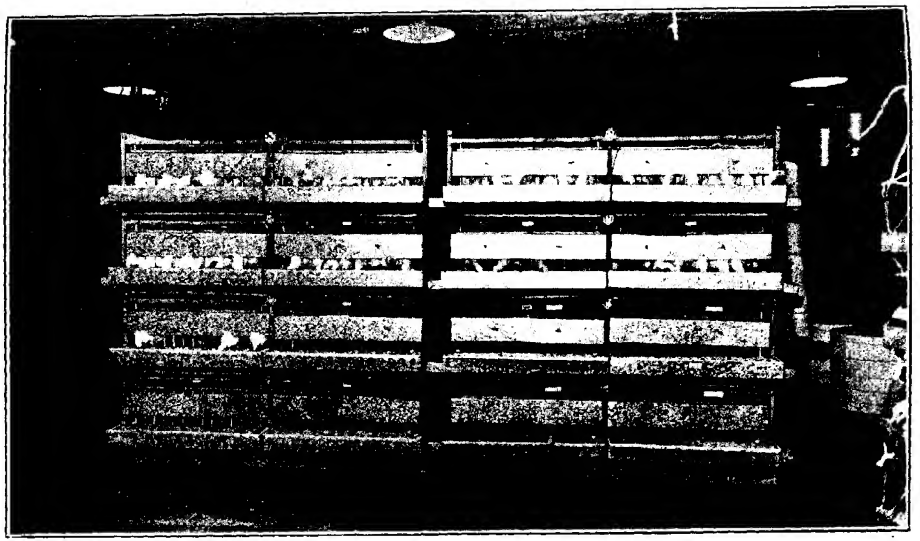

Figure 1. Ruby light for the battery brooder. The lights are arranged to light the feed and water troughs.

The lights should be arranged as illustrated in Figure 1 so that all feed hoppers are lighted but only a small amount of light is admitted into the battery compartments.

CONTROL OF CANNIBALISM IN THE BROODER HOUSE

Poultrymen who use a brooder house where the chicks are reared in semi-confinement, that is with a wire porch or concrete yards, have had trouble with cannibalism in the last few years. It has been found possible through carefully conducted experiments at the Washington Agricultural Experiment Station to prevent cannibalism in the brooder house. In the experimental brooder house with 2200 chicks in eleven different lots of 200 each raised on wire floors and confined to the brooder house, cannibalism was produced in several of the pens during the third and the fourth week. This manifestation consisted entirely of tail picking. As soon as the cannibalism was noticed in the pens 100-watt natural colored ruby Mazda lamps, illustrated in Figure 2, were installed. Fourteen-inch reflectors were used with the lamps to throw the ruby light onto the hoppers. The windows were darkened by a covering of building paper. Immediately the cannibalism was arrested. This is one method of stopping cannibalism absolutely when the habit breaks out in a house. If prevention is desired, it is advised from the experience at this experiment station, to turn on the ruby lights when the chicks are three weeks old and use them the entire time that the chicks are confined in the brooder house. The use of twelve-hour ruby lights is recommended for best results.

In order that there may be plenty of ventilation, the windows in the front of the house should be of the two-sash type. The lower sash should be stationary and covered with building paper, and the top window should be hinged at the bottom to the top of the lower sash so that the windows will drop in. The top sash must be covered with building paper and the sides must be covered with muslin to prevent the direct sunlight and diffused light from penetrating into the house and striking the floor. In using the ruby light it is important to secure a uniform distribution of the ruby light on the floor, and this necessitates control of the side light. Otherwise the effectiveness of the ruby light will be greatly diminished. With this system of light it was found to be impossible to distinguish any blood on the tails of the birds that had been picked, and all red parts such as the combs, the wattles, and the bases of the feathers seem greyish white under this ruby light.

The painting of the windows with red lacquer or paint to produce a ruby light in the brooder house has been used successfully to control cannibalism on commercial poultry farms in Washington and New

[1]Boggs, L. C., The Washington Cooperative Chick Assn., The Master Breeding Farm, Ferndale, Washington., 1932.

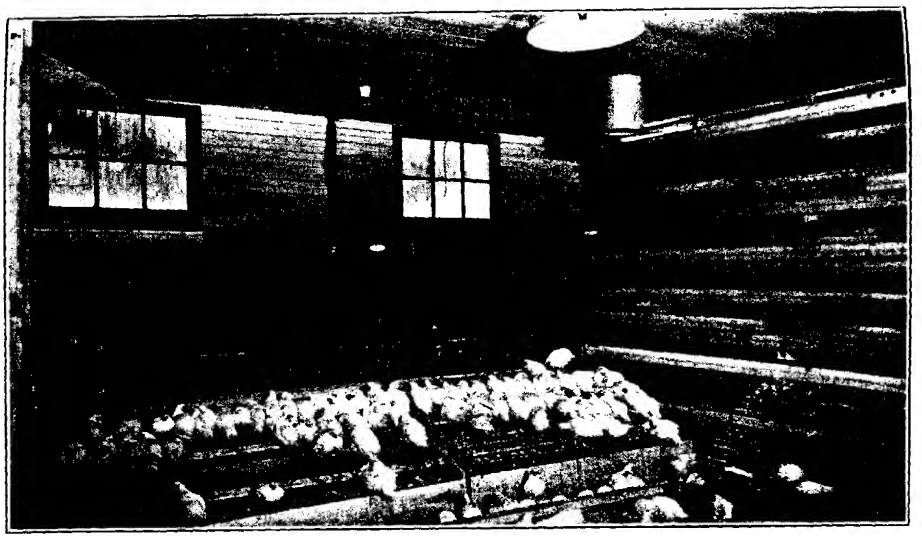

Figure 2. Ruby light for the brooder room. 100-watt ruby lamp with reflector on the ceiling. Windows are painted with a rich, red colored lacquer.

Jersey. The Master Breeding Farm[1] brooded 15,000 pedigreed chicks in the spring of 1932 and they prevented cannibalism by the use of red paint on their brooder house windows. Many commercial poultry farmers in northwestern Washington secured full protection against cannibalism by following the methods demonstrated on this farm.

In New Jersey, Fox[1] used on his farm a paint which he had developed, and demonstrated the value of painting the windows of the brooder houses to prevent cannibalism. This method of painting the windows that was utilized so successfully on these farms was tested in April and May, 1932 in the experiment station brooder house.

Both front and rear windows were painted with a rich, red colored lacquer to produce a red ruby light—using the sun as a source of light. After the windows are cleaned and dried thoroughly they may be either painted or sprayed with a small lacquer spray. Spraying gives a much more uniform distribution of the lacquer and prevents all streaking. In painting it is very important that the lacquer be uniformly distributed to prevent shafts of sunlight from penetrating the glass or glass substitute where the material has been irregularly spread. Like treatment may be applied to glass substitutes with similar results. The same type of hinged front window is recommended when glass substitutes are used. Muslin should also be used on the sides of the windows to prevent the direct sunlight from penetrating into the house. It is important, when using this system, to have plenty of ventilation in the brooder house and to keep it as cool as possible to secure maximum growth and development of the pullets.

When a section of the laying house is used for a brooder, the poultryman may not care to use a permanent paint to lacquer the glass or glass substitute windows, and would prefer to use a paint that may be removed or washed off at the close of the eight or ten week brooding period so that his laying house may have the lighter colored sashes when he desires. For this purpose the use of a **dark red** opaque, flat finish, show card color is suggested. Paint this material on the inside of the window. At the end of the brooding period it may be easily removed by washing.

In the use of ruby colored windows it is important to secure the correct color of **red lacquer** or **soluble paint.** All windows in the house should be painted, including the windows in the rear as well as in front and on the ends. In all cases where cannibalism had developed in the experimental pens, the use of red lacquer on the windows stopped the cannibalism immediately. Many poultry farmers in the state of Washington have used ruby-lighted brooder houses in their brooding this past year with excellent results.

[1]Fox, Lewis and Althouse, S. L., "New Light on Cannibalism is Red". Poultry Item, Apr. 1932.

Some of the methods that have been tested which have not proved extremely satisfactory are: (1) Covering the windows with red crepe paper. The paper fades and the chickens pick it, which defeats its purpose. (2) Using red kalsomine on the windows, which was not at all satisfactory because it fades quickly and does not give the proper ruby red light in the room. (3) Using red muslin. The last seems to be more satisfactory than the first two, but does not give the desired ruby color.

A few other factors which seem to assist in controlling cannibalism in the chicks have been observed in the experimental brooder house during the last two years. They are: (1) The use of a warm hover and a cool room for brooding. Brooding in close confinement at high temperatures seems to develop the cannibalistic habit rapidly. (2) Feeding from the age of seven days plenty of succulent, cut green food to the chicks, at all times, in self-feeding green food hoppers. (3) Cutting down the brooding temperature so that by the fourth week the chicks are practically weaned from the heat, and roosting the chicks at five weeks. (4) Removal of the cockerels as soon as sex can be determined. The quicker the cockerels are removed, the less the difficulty encountered with cannibalism. (5) Removal of the pullets from the brooder house to free range by the eighth week.

CANNIBALISM ON THE PULLET RANGE

There should be very little difficulty on the pullet range with either feather picking, tail picking, or other forms of cannibalism if the pullets have been reared through the brooder period without any trouble of this kind. It has been found, however, that when the pullets are confined in the range houses for any length of time in the morning and not permitted to range at daylight, those which have already developed the cannibalistic habit start tail picking on their first morning of confinement in the range house. The installation of the "Automatic Chick Door Opener," described by Shoup[1] will prevent this picking on the range. This arrangement permits the pullets to trip the exit door automatically so that they are allowed free range in the early morning and are not confined to the house to develop bad habits. A device of this kind should prevent the development or reappearance of the habit on the range during the summer months.

This "Automatic Chick Door" is illustrated in Figure 3. The door is 10 inches high and 12 inches long. It is hinged at the bottom by a piece of No. 9 wire, and nailed to the door and to the outside of the house with staples. A 1 x 2 inch cleat is nailed on the outside of the

[1]Shoup, G. R., "Commercial Brooder Equipment and Its Operation"., Pop. Bul. 2-W:17, 1926.

door at the top for a weight. A 12-inch piece of 1 x 2 is nailed to the outside of the house just above the door. The door is hung at a slight incline. A latch stick 24 inches long is hung over the door. When the pullets jump on the latch the door is immediately released and opens.

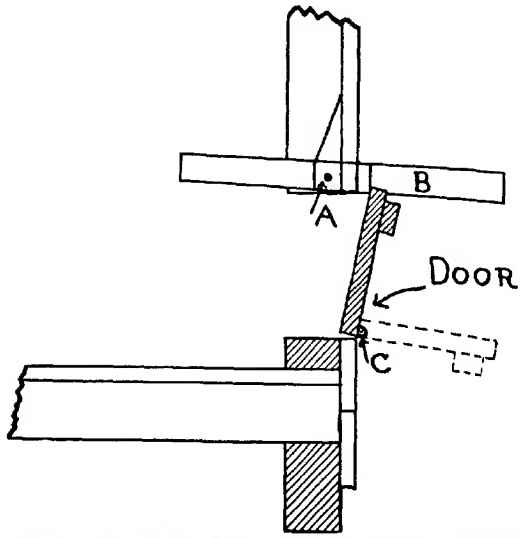

Figure 3. The automatic chick door to prevent cannibalism on the range. (A) Ten penny nail used for hinge for latch stick. (B) Latch stick 24 inches long. (C) Door hinged at bottom with No. 9 wire.

CANNIBALISM CONTROL IN THE BATTERY ROOM

Pullets and broilers brooded for long periods in battery brooders, from 3 to 12 weeks, often develop tail picking and cannibalistic habits because of their close confinement and the high temperatures of the brooder room. This habit often becomes so serious that maximum gains cannot be obtained. In Figure 4 there is an illustration of the system of lighting used in controlling cannibalism in the battery brooder rooms which has been used successfully for the last four seasons and which prevents all difficulties from cannibalism. Sixty or 100-watt natural colored ruby Mazda bulbs, glass not inside frosted,

are used to light the room. A 14-inch reflector is used over the bulb to throw the light on the hoppers and drinking pans in the battery. It is not planned to throw any large amount of light into the battery compartments. Normal gains are made with this system of lighting and absolute protection is assured.

A spot light has also been tried, in which a medium red Transolene color media with a 200-watt bulb as a source of current were used. This arrangement gives more light of practically the same color and produces exactly as good results, but it is more expensive in operation and the media requires frequent replacement as it fades quickly under the intense heat of the 200-watt bulb. A spot light of this type should be arranged to focus from overhead on the feeding troughs and watering pans in the brooder.

RUBY LIGHT FOR THE FATTENING STATION

Cannibalism and the loss of normal gains due to this habit are two of the major problems encountered in fattening stations. It has been proven at this experiment station that the ruby lighting of the fattening room prevents the development of cannibalistic habits and aids in producing maximum gains in weight. For the last two years the Washington Cooperative Egg and Poultry Association[1] has used ruby lighting successfully in several of their major fattening stations. This association has used two methods of ruby lighting in their fattening rooms. These two methods are: the 100-watt natural ruby Mazda bulb and the spraying of the windows with a rich, red-colored lacquer.

There are two ways in which fattening stations may be lighted: First, by the use of the 100-watt natural colored ruby Mazda bulb, glass not inside frosted, (Figure 4) with a 14 or 16-inch reflector to throw the light down from the ceiling towards the hoppers on the front of the fattening batteries. It is necessary in using this plan to darken the windows either with curtains or with building paper so that no sunlight or daylight will penetrate the room. Remarkable results in reducing mortality in commercial fattening stations have been secured by this method, and marked gains have been made because of the quieting effect the light apparently has on the confined birds.

The second method which gives exactly as good results and is somewhat cheaper involves spraying the windows of the fattening room with a rich red colored lacquer. To secure the best results with this method it is necessary to have a well-lighted fattening room with

[1] Swarthout, A. V., Washington Cooperative Egg and Poultry Association., Seattle, Washington, 1931.

Figure 4. Ruby light for the fattening room. 100-watt ruby lights are arranged to light only the feed troughs.

windows on at least three sides. It is not necessary to use the electric ruby lights during the light part of the day in a room of this type. For feeding when the light is subdued, such as on a rainy day or at night, it would be necessary with this system to have 100-watt natural colored ruby lamps installed.